CHROME PLATING AND ANODIZING OPERATIONS

SELF-INSPECTION HANDBOOK

Cal/EPA
Air Resources Board
Enforcement Division
Compliance Assistance Program

In Cooperation With Local
Air Pollution Control Districts

COMPLIANCE ASSISTANCE...

How can this handbook help you?

This handbook is designed to assist owners, supervisors, and environmental managers of chrome plating and chromic acid anodizing facilities understand and comply with air pollution laws and requirements for chrome plating and anodizing facilities. The information is based on the **State Airborne Toxic Control Measure (ATCM) for Chromium Plating and Chromic Acid Anodizing Facilities** (Title 17, California Code of Regulations, Sections 93102 through 93102.16). The handbook explains why the emissions from chrome plating need to be controlled and how they are controlled. Included in the handbook is a brief discussion of the emission requirements and some of the reporting and maintenance requirements for chrome plating facilities.*

Who is affected?

Any business conducting hard chromium electroplating, decorative chromium electroplating, or chromic acid anodizing; or any business selling chromium electroplating or chromic acid anodizing kits to non-permitted facilities is subject to the ATCM.

*Be sure to consult your local air district about compliance requirements specific to your area.

What is chromium plating and chromic acid anodizing?

Chromium plating is the electro-deposition of metallic chrome onto a part. Parts are immersed into a heated aqueous solution containing chromium ions through which a direct electric current flows between an anode (positive electrode) and a cathode (negative electrode). The part becomes the cathode (charged cell) in an electroplating solution. The high electric current causes the water molecules in the chromium solution to split into hydrogen and oxygen ions. Bubbles are created at the surface of the tank as the gases emerge from the solution. These bubbles cause a chromic acid (Cr03) mist to form at the surface of the tank.

There are two types of chromium plating: decorative and hard. **Decorative chromium plating** applies a thin layer of chromium to parts to provide a protective and decorative finish, for example, on faucets, automotive wheels, and bumpers. Less chromium is used in decorative chromium plating than in hard chromium plating. The plating time ranges from 30 seconds to five minutes.

Hard chromium plating applies a thicker layer of chromium in order to put a more durable coating on a part. It is used to apply a thick chromium layer on metal substrates such as engine parts, industrial machinery, and tools to provide greater protection against corrosion and wear. Hard chromium plating time ranges from 20 minutes to 36 hours.

Chromic acid anodizing is an electro-chemical conversion process that creates a wear and corrosion resistant surface on metal objects, but does not result in a metallic chromium layer. However, both chromic acid anodizing and chromium plating generate chromic acid mist.

Why control emissions?

Chromic acid contains hexavalent chromium (Cr+6), which is a toxic air contaminant. This means it is an air pollutant that may cause or contribute to an increase in deaths or in serious illness, or pose a present or potential hazard to human health. Most chromium plating facilities use Cr+6, although trivalent chromium (Cr+3) may also be used in decorative chromium plating. Although Cr+3 has a lower toxicity than Cr+6, both are hazardous materials. Airborne mists containing chromic acid or Cr+6 may be inhaled or come in contact with the skin. Therefore, it is important that these mists be controlled. It is important to know that the lower the efficiency of the plating operation, the greater the amount of acid mist formed.

Hexavalent chromium is the most toxic form of chromium and is a known human carcinogen. Hexavalent chromium can enter the body when people breathe air, eat food, or drink water containing it. It may also be found in house dust and soil that can be ingested or inhaled. There is a wide range of health effects from exposure to Cr+6. Long term (chronic) effects from inhaling high concentrations may cause a runny nose, sneezing, skin rashes, nosebleeds, ulcers, holes in the nasal septum, and lung cancer. Short term (acute) effects may cause kidney damage, nausea, irritation of the gastrointestinal tract, stomach ulcers, and convulsions.

HEALTH EFFECTS OF Cr^{+6} TOXIC EMISSIONS

<u>ACUTE</u>
(Short Term)

KIDNEY DAMAGE
STOMACH PROBLEMS

<u>CHRONIC</u>
(Long Term)

RESPIRATORY DAMAGE
LUNG CANCER
SKIN RASHES
DAMAGE TO MUCOUS MEMBRANES
AND NASAL PASSAGES

PROTECT YOURSELF!!!

Electroplating is a wet chemical operation. Splashes from plating or rinse tanks, and spills of plating solution may contact skin or clothing and create a potential health hazard.

<u>Be sure</u> to watch for deterioration of electrical systems in corrosive and wet environments.

<u>AVOID</u>

SPLASHES PUDDLES SPILLS

SPARKS OR FLAMES

<u>WEAR</u>

SAFETY GLASSES AND PROTECTIVE CLOTHING

What control measures are available?

Hexavalent chromium compounds from the chromium plating and chromic acid anodizing process may become airborne as fine dust particles that eventually settle over the land and water. Fume suppressants, control equipment, and good housekeeping practices are needed to limit the emissions of these particles.

Fume Suppressants

Chemical fume suppressants are chemicals that reduce or suppress fumes or mists at the surfaces of chrome plating or anodizing tanks. Chemical fume suppressants containing wetting agents reduce the surface tension of a plating bath, thereby reducing the emissions of chromic acid mist from the tank. With Cr^{+6}, the fume suppressant is usually added separately to the plating bath.

Table 1 lists the approved chemical fume suppressants and corresponding surface tension values capable of reducing hexavalent chromium emissions to 0.01 milligrams/ampere-hour.

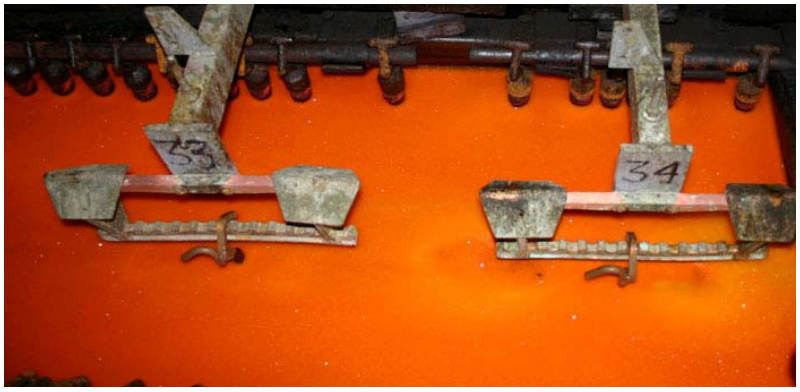
Table 1: Approved Chemical Fume Suppressants*

Chemical Fume Suppressant and Manufacturer	***Stalagmometer Measured Surface Tension (dynes/centimeter)***	***Tensiometer Measured Surface Tension (dynes/centimeter)***
Benchbrite CR 1 800® Benchmark Products	< 40	< 35
Clepo Chrome® MacDermid	< 40	< 35
Fumetrol 140® Atotech U.S.A.	< 40	< 35
HCA-6.2® Hunter Chemical LLC	< 32	< 28
HCA-4® Hunter Chemical LLC	< 32	< 28

* ATCM Section 93102.8

Some fume suppressants can also reduce emissions by creating a foam blanket on top of the plating solution. Foam blankets provide an effective control if they are kept at a proper thickness. They retard the release of hydrogen gas from the plating tank surface. This process may create the risk of an explosion due to the buildup of hydrogen gas in the tank. It is important to make sure that caution be taken to prevent any type of ignition (spark or flame) around a foam blanket or a bath surface. The explosion risk is greater with the use of foam blankets than with wetting agents.

Mechanical fume suppressants reduce fumes or mists at the surfaces of chrome plating or anodizing tanks by direct contact with the surface of the bath. Polyballs and polypropylene tubes are mechanical fume suppressants that float on the surface of a plating solution to control fumes.



Chemical Fume Suppressants - Foam Blanket

Mechanical Fume Suppressants – Polyballs

Control Equipment

Add-on controls are air pollution control equipment installed in the ventilation system of chrome plating and anodizing tanks to collect and contain chromium emissions. Plating tanks with add-on controls have a forced ventilation system designed to remove the chromic acid mist. Exhaust hoods or vents are commonly situated along the sides of the tank surface. The exhaust hoods pull the air from the surface of the tank to the add-on control(s). For exhaust hoods or other tank ventilation systems to work efficiently, they must be properly designed and maintained. Drafts of air from open windows, doors, and floor fans must be reduced as they can limit the ability of the exhaust hoods to draw off the chromic acid mist.

Add-on control devices such as packed-bed scrubbers (PBS), composite mesh pad (CMP) systems, PBS/CMP systems, fiber-bed mist eliminators, and high efficiency particulate arrester (HEPA) filters control the chromium emissions after they have been collected in a duct and conveyed to the control device. Some of these control devices are shown below:

Fiber-Bed Mist Eliminator

Composite Mesh Pad (CMP)

HEPA Filter

During tank operation, control equipment is closely monitored and must meet specific emission and maintenance requirements. Every facility with an add-on control device must prepare an operation and maintenance (O&M) plan specific to their operation. This O&M plan must be available for inspection upon request and revised as necessary to minimize breakdowns. Table 2 summarizes inspection and maintenance requirements.

Table 2: Equipment Inspection and Maintenance Schedule*

Control Technique/Equipment	***Inspection & Maintenance Requirements***	***Frequency***
Composite mesh-pad (CMP) system, Packed-bed scrubber (PBS), or PBS/CMP	1. Visually inspect device for proper drainage. Visually check for unusual chromic acid buildup on the pads, and/or packed beds. Visually check for chemical attack that could affect the structural integrity of the device.	1. Quarterly
	2. Visually inspect back of mesh pad closest to the fan, and/or back of chevron mist eliminator for chromic acid mist.	2. Quarterly
	3. Visually inspect for leaks in ductwork from tank to the control device.	3. Quarterly
	4. Wash down composite mist pads and fiber elements. Add fresh makeup water to the packed bed when it is needed.	4. Per manufacturer
Fiber-bed mist eliminator[1]	Same as number (1), (3) and (4) for CMP/PBS.	Same as for CMP/PBS
HEPA filter	1. Look for changes in pressure drop.	1. Weekly
	2. Replace HEPA filter.	2. Per manufacturer or permit requirements

* ATCM Section 93102.10

[1] Inspection and maintenance requirements for the control device installed upstream of the fiber-bed mist eliminator to prevent plugging do not apply as long as the inspection and maintenance requirements for the fiber-bed unit are followed.

Equipment Inspection and Maintenance Schedule* (Cont'd)

Control Technique/Equipment	*Inspection & Maintenance Requirements*	*Frequency*
Chrome Tank Covers	1. Drain air-inlet (purge air) valves.	1. Daily (when tank is in operation)
	2. Visually inspect access door seals and membranes.	2. Weekly
	3. Drain evacuation unit directly into plating or rise tank.	3. Weekly
	4. Visually inspect membranes for perforations.	4. Weekly
	5. Visually inspect all clamps for proper operation.	5. Monthly
	6. Clean or replace filters on evacuation unit.	6. Monthly
	7. Visually inspect piping connected to evacuation unit.	7. Quarterly
	8. Replace access door seals, membrane evacuation unit filter, and purge air inlet check valves.	8. Per manufacturer
Pitot tube	Backflush with water, or remove from the duct and rinse with fresh water. Replace in the duct and rotate 180 degrees to ensure that the same zero reading is obtained. Check pitot tube ends for damage. Replace pitot tube if cracked or fatigued.	Quarterly
Ampere-hour meter	Install and maintain per manufacturer's specifications.	Per manufacturer
Stalagmometer/Tensiometer	Calibrate and maintain per manufacturer's specifications.	Per manufacturer

***** ATCM Section 93102.10

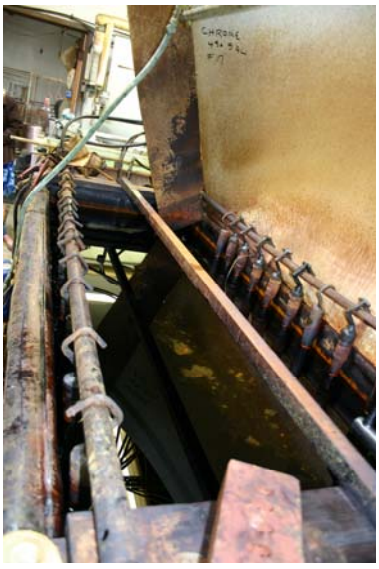
[1] Inspection and maintenance requirements for the control device installed upstream of the fiber-bed mist eliminator to prevent plugging do not apply as long as the inspection and maintenance requirements for the fiber-bed unit are followed.

Housekeeping Practices

Housekeeping practices such as rapidly cleaning up spills, and ensuring that chemicals are stored and transported safely will help reduce fugitive emissions of hexavalent chromium. Table 3 summarizes the housekeeping requirements.

Closed Containers of Chromic Acid Flakes

(Closeup of Splash Guard)



(Splash Guard)

Splash Guard on Tank Reduces Overspray and Ensures Liquid is Returned to Tank

Table 3: Housekeeping Requirements*

Housekeeping Practices	*Requirements*
Chromic acid powder or flakes or substances containing hexavalent chromium	Must be stored in a closed container in an enclosed storage area. Must be transported in a closed container.
Hexavalent chromium spills	Must be cleaned up or contained within one hour of the incident.
Dragout from tank(s) for facilities with automated lines	Must have drip trays installed between tanks to ensure dragout liquid is returned to tank(s).
Dragout from tank(s) for facilities without automated lines	Must handle parts so that chromic acid in not dripped outside the electroplating tank. Must have a splash guard installed at the tank to minimize overspray and to ensure liquid is returned to tank.
Surfaces within enclosed storage area, open floor area, walkways around process tank(s) or any surface potentially contaminated with hexavalent chromium	Must be cleaned at least once every seven days by one or more of the following methods: HEPA vacuumed, or hand wiped with a damp cloth, or wet mopped, or maintained with use of non-toxic chemical dust suppressants, or other method as approved by the permitting agency.
Buffing, grinding, or polishing areas	Must be separated from the process operation by installing a physical barrier such as plastic strip curtains.
Chromium or chromium-containing wastes generated from housekeeping activities	Must be stored, disposed of, recovered, or recycled to prevent fugitive dust and in accordance with hazardous waste requirements.

* ATCM Section 93102.5(c)

What are the emission limits?

The emission limits for hexavalent chromium electroplating and chromic acid anodizing facilities are listed in Section 93102.4 of the **State Airborne Toxic Control Measure (ATCM) for Chromium Plating and Chromic Acid Anodizing Facilities**. Emission limits for facilities that perform electroplating using a trivalent chromium bath or facilities with enclosed hexavalent chromium electroplating tanks are in Section 93102.6.

Except for facilities with low production throughput (ampere-hours), the 2007 amendments to the ATCM set the same emission limit of 0.0015 milligrams/ampere-hour for all facilities using the hexavalent chromium process, whether they perform hard plating, decorative plating, or chromic acid anodizing. The limit is phased in depending on the production throughput (in annual permitted ampere-hours) and the distance to the nearest sensitive receptor (a residence or school). Depending on the facility, the limit becomes effective two to four years after the effective date of the amendments (October 24, 2007). Until the new limits become effective, facilities are required to meet the emission limits that were in effect before the 2007 amendments. The pre-2007 emission limits are based on the type of operation.

Facilities with low production throughput are required to reduce hexavalent chromium emissions using ARB specified chemical fume suppressants as shown earlier in Table 1. Low production throughput is $\leq$ 20,000 ampere-hours per year for facilities located within 330 feet of a sensitive receptor, or $\leq$ 50,000 annual ampere-hours if located beyond 330 feet from a sensitive receptor.

The emission limits are shown in the following tables:

- Table 4 shows the new 2007 emission limits with some future effective dates of 2010 and 2011
- Table 5, 6, and 7 show the pre-2007 limits currently required until the new limits (Table 4) become effective
- Table 8 shows the new 2007 limits for modified and new hexavalent chromium electroplating and chromic acid anodizing facilities
- Table 9 shows the new 2007 limits for electroplating using trivalent chromium bath
- Table 10 shows the new 2007 limits for enclosed hexavalent chromium electroplating tanks

The new 2007 emission limits are shown in Table 4 below with some future effective dates of 2010 and 2011. The various colors highlight the different future effective dates. **Until the new limits become effective for a facility, that facility must meet the pre-2007 limits as shown in Table 5, 6 and 7.**

Table 4: Emission Limits for All Existing Hexavalent Hard and Decorative Chromium Electroplating and Chromic Acid Anodizing Facilities After October 24, 2007*

Sensitive Receptor Distance[1]	***Annual Permitted Ampere-Hours***	***Emission Limitation***	***Effective Date****
≤ 330 feet	≤ 20,000	Use Chemical Fume Suppressants as specified in Table 2 of this handbook[2]	April 24, 2008
≤ 330 feet	> 20,000 and ≤ 200,000	0.0015 milligrams/ampere-hour as measured after add-on air pollution control device(s)	October 24, 2010
≤ 330 feet	> 200,000	0.0015 milligrams/ampere-hour as measured after add-on air pollution control device(s)[3]	October 24, 2009
> 330 feet	≤ 50,000	Use Chemical Fume Suppressant as specified in Table 2 of this handbook[2]	April 24, 2008
> 330 feet	> 50,000 and ≤ 500,000	0.0015 milligrams/ampere-hour	October 24, 2011
> 330 feet	> 500,000	0.0015 milligrams/ampere-hour as measured after add-on air pollution control device(s)[3]	October 24, 2009

* ATCM Section 93102.4(b)

** Until the limits become effective for a facility, that facility must meet the limits that were in effect before 10/24/07 as shown in Tables 5, 6, and 7 of this handbook.

[1] Distance shall be measured as specified in section 93102.4(b)(2)(A) of the ATCM.

[2] Alternatively, a facility may install an add-on air pollution control device(s) that controls emissions to below 0.0015 milligrams per ampere-hour.

[3] When annual emissions exceed 15 grams of hexavalent chromium emissions, a site specific risk analysis must be conducted by the owner or operator in accordance with the permitting agency's procedures, unless a site specific risk analysis has already been conducted and approved by the permitting agency. The analysis must be submitted to the permitting agency.

Facilities must meet the **pre-2007 emission limits** as shown in Table 5, 6, and 7 below until they are subject to the new limits in Table 4. **Once a facility is subject to the new limits, the pre-2007 limits no longer apply**. The pre-2007 limits are based on the type of operation.

Table 5: Emission Limits for Hard Chrome Plating Facilities that Began Operations on or before 12/16/93

Facility Size	***Controlled Emissions[1] (lbs/yr)***	***Requirement***		
		≤ 60 million amp-hrs[2]	***> 60 million amp-hrs[2]***	
			Option 1	***Option 2[3]***
Large	≥ 10 lbs/yr	≤ 0.006 mg/amp-hr	≤ 0.006 mg/amp-hr	≤ 0.006 mg/amp-hr
Medium	< 10 lbs/yr but > 2 lbs/yr	≤ 0.03 mg/amp-hr	≤ 0.006 mg/amp-hr	≤ 0.03 mg/amp-hr and 0.015 mg/dscm[4]
Small	≤ 2 lbs/yr	≤ 0.15 mg/amp-hr	≤ 0.03 mg/amp-hr	≤ 0.15 mg/amp-hr and 0.015 mg/dscm
Very Small (Operating at ≤ 500,000 amp-hr/yr)		The air district or permitting agency may approve on a case-by-case basis alternative standards for these operations. At a minimum the source must use a chemical fume suppressant as specified in Table 2 of this handbook.		

[1] Combined hexavalent or total chrome emissions from hard chrome plating operations

[2] Maximum cumulative potential rectifier capacity or usage limit.

[3] "Option 2" is an alternative emission limitation for small and medium facilities that elect to demonstrate compliance with both a mg/amp-hr and a mg/dscm requirement.

[4] mg/dscm = milligrams per dry standard cubic meter of air.

Table 6: Emission Limits for Hard Chrome Plating Facilities that Began Operations after December 16, 1993, and before October 24, 2007

Facility Size	***Controlled Emissions[1] (lbs/yr)***	***Requirement***	
		≤ 60 million amp-hrs[2]	***> 60 million amp-hrs[2]***
Large	≥ 10 lbs/yr	≤ 0.006 mg/amp-hr	≤ 0.006 mg/amp-hr
Medium/ Small	< 10 lbs/yr	≤ 0.03 mg/amp-hr	≤ 0.006 mg/amp-hr

[1] Combined hexavalent or total chromium emissions from hard chromium plating operations.

[2] Maximum cumulative potential rectifier capacity or usage limit.

Table 7: Emission Limits for Hexavalent Decorative Chrome Plating and Chromic Acid Anodizing Facilities that Began Operations before October 24, 2007

Method of Compliance	*Requirement*
(1) Add-on air pollution control equipment, or chemical fume suppressants, or mechanical fume suppressants (i.e. polyballs), or (2) below	≤ 0.01 mg/dscm* (4.4×10^{-6} gr/dscf)
(2) Chemical fume suppressants	As specified in Table 2 of this handbook

* mg/dscm = milligrams per dry standard cubic meter of air.

For an owner planning to modify an existing facility or to operate a new facility, the new 2007 emission limits for all modified and new hexavalent chromium electroplating or chromic acid anodizing facilities are shown in Table 8.

Table 8: Emission Limits for Modified and New Hexavalent Chromium Electroplating or Chromic Acid Anodizing Facilities

Facility Type	*Method of Compliance*	*Requirement*
Modified Facility	Add-on air pollution control device(s) or an approved alternative method(s)	0.0015 milligrams/ampere-hour as measured after add-on air pollution control device(s)[1]
New Facility	HEPA add-on air pollution control device(s) or an approved alternative method(s)	0.0011 milligrams/ampere-hour as measured after the HEPA add-on air pollution control device[2]

[1] When annual emissions exceed 15 grams of hexavalent chromium emissions, a site specific risk analysis must be conducted by the owner or operator in accordance with the permitting agency's procedures, unless a site specific risk analysis has already been conducted and approved by the permitting agency. The analysis must be submitted to the permitting agency.

[2] Conduct site specific risk analysis.

All facilities that perform electroplating using a **trivalent chromium bath** or that perform **electroplating with enclosed hexavalent chromium electroplating tanks** must meet the new 2007 emission limits in Table 9 and 10 below.

Table 9: Emission Limits for Existing, Modified, or New Facilities that Perform Electroplating Using a Trivalent Chromium Bath

Method of Compliance	***Requirement***
(1) Add-on air pollution control equipment, or chemical fume suppressants, or mechanical fume suppressants (i.e. polyballs), or (2) below	≤0.01 mg/dscm* ($4.4x10^{-6}$ gr/dscf)
(2) Chemical fume suppressants containing a wetting agent	Use wetting agent as bath ingredient and maintain records of the bath components purchased, with the wetting agent clearly identified as a bath constituent contained in one of the components.

* mg/dscm = milligrams per dry standard cubic meter of air.

Table 10: Emission Limits for Enclosed Hexavalent Chrome Tanks

Method of Compliance	***Requirement***
(1) Add-on air pollution control equipment, or	≤0.015 mg/dscm*
(2) Chemical fume suppressants, or	As specified in Table 2 of this handbook
(3) Mass rate of total chromium	maintain at less than the maximum allowable mass emission rate as calculated using the procedure specified in Appendix 7 of the ATCM

* mg/dscm = milligrams per dry standard cubic meter of air.

What are the monitoring requirements?

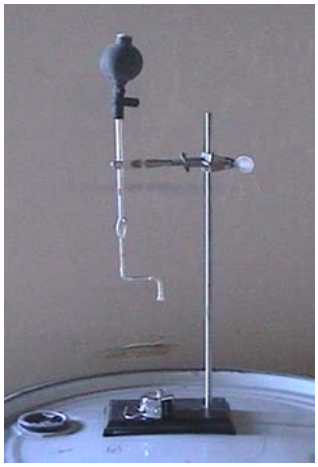
The following gauges and meters must be maintained and monitored by facility operators:

Totalizer/Ampere Hour Meter

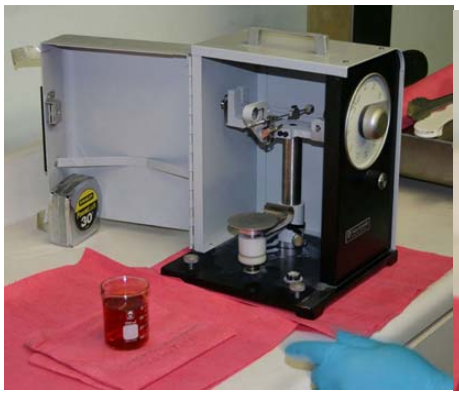
A totalizer or ampere hour meter measures the total amount of electrical current (amperes) applied to a plating tank over a period of time (hours), expressed as ampere-hours (amp-hrs).

Magnehelic Gauge

A magnehelic gauge measures the pressure drop across the filter, expressed as inches of water. Manometers and pitot tubes may also be used to measure pressure drop.



Stalagmometer



Tensiometer

A stalagmometer or a tensiometer is used to measure the surface tension of the chromium bath, expressed as dynes per centimeter (dynes/cm).

Don't Forget the Monitoring Requirements!!!

Table 11: Monitoring Requirements for Fume Suppressants

Suppressant and Meter/Gauge[1]	***Parameter Measured/Monitored***	***Monitoring Requirements***
Mechanical fume suppressants	Polyballs or similar mechanical fume suppressants	Visually inspect plating bath(s) daily for coverage consistent with PTV[2].
Chemical suppressant	Foam blanket thickness across tank surface	Measured hourly for 15 operating days and daily thereafter as long as consistent with PTV[2].
Staglagmometer/Tensiometer	Surface tension of plating bath in dynes per centimeter	Measured daily for 20 operating days and weekly thereafter if no violation.

[1] All meters and gauges should be inspected and maintained as per manufacturers' specifications. Specifications shall be available on site unless an outside laboratory is conducting testing.

[2] PTV = performance test value.

Table 12: Monitoring Requirements for Add-On Control Devices

Meter/Gauge[1]	***Parameter Measured***	***Monitoring Requirements***
Ampere-Hour Meter (Totalizer)	Total amount of electrical current applied for plating in ampere-hours.	Continuous recording, non-resettable, ampere-hour meter with a separate meter hard-wired for each rectifier.
Magnehelic Gauge Manometer Pitot Tube	Pressure drop measured in inches of water (shall be continuously monitored across add-on control device).	Must be visible and in clear sight. Pressure drop maintained within $\pm$2 inches of water of PTV[2] to demonstrate compliance with emission limits for CMP, PBS, CMP/PBS, and fiber-bed mist eliminator and within -1/2 times to +2 times the inches of water of PTV[2] to demonstrate compliance with emission limits for HEPA filters.
Mechanical Pressure Gauge	Inlet velocity pressure	Continuously monitor the inlet velocity pressure of a packed-bed scrubber with a mechanical gauge. Gauge must be visible and in clear sight. Inlet velocity pressure maintained with $\pm$10 percent of PTV[2] to demonstrate compliance with emission limitation.

[1] All meters and gauges should be inspected and maintained as per manufacturers' specifications. Specifications shall be available on site unless an outside laboratory is conducting testing.
[2] PTV = performance test value.

What records must be kept?

Records must be maintained to verify compliance with the regulations. **Only persons who completed the environmental compliance training course pertaining to chromium electroplating and chromic acid anodizing can conduct environmental compliance and recordkeeping requirements.** The ATCM 2007 amendments (Section 93102.5(b)) require that by October 24, 2009, and within every two years thereafter, the owner or operator of a hexavalent chromium plating or chromic acid facility must have completed the Air Resources Board (ARB) Compliance Training Course 209.3 Chrome Plating and Anodizing. The class registration information is available at the following internet address:

http://www.arb.ca.gov/Training/registra.htm

For more information on the ARB Training Program, visit the internet address below.

http://www.arb.ca.gov/training/training.htm

Completion of the South Coast Air Quality Management District Environmental compliance training course pursuant to Rule 1469 will also fulfill the ATCM specified training requirement.

Records must be maintained for:

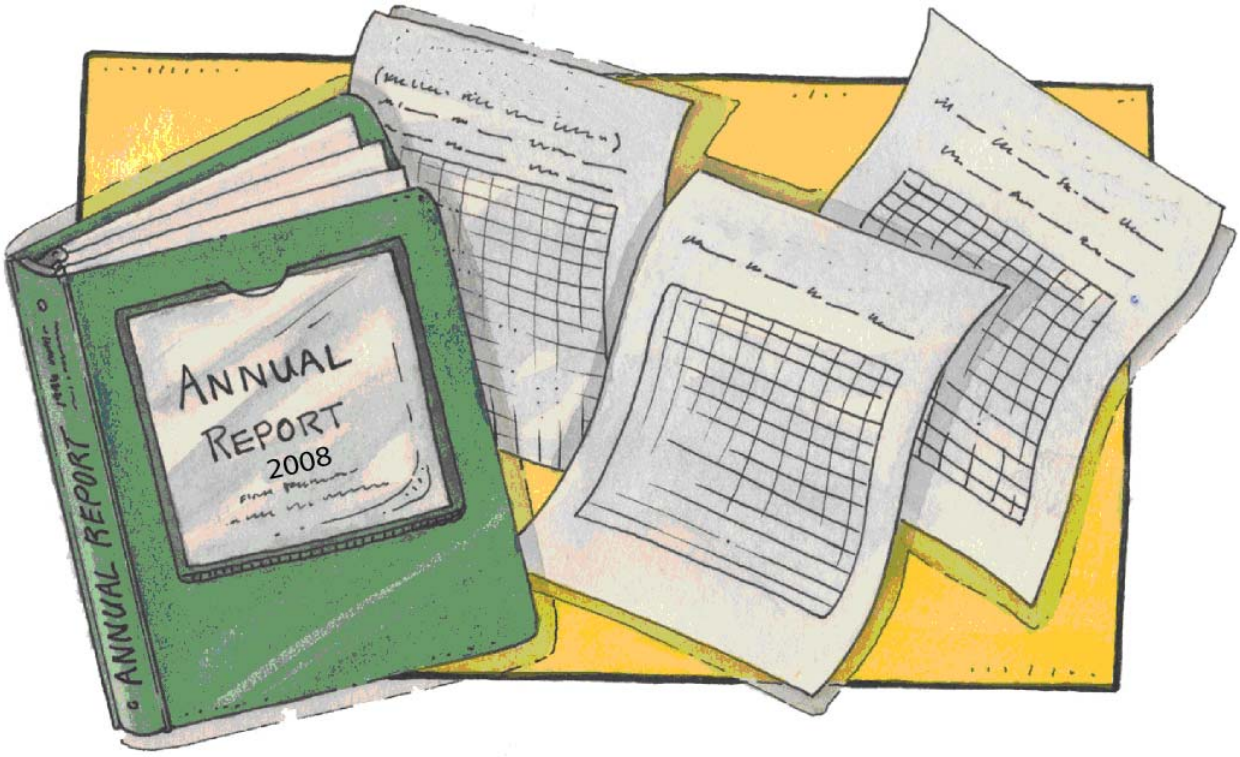
(ATCM Section 93102.12)

- √ inspections
- √ performance tests
- √ monitoring data
- √ breakdowns
- √ exceedances of emission limits
- √ demonstrating facility size
- √ annual ampere-hour use
- √ fume suppressant additions
- √ trivalent bath components
- √ new/modified source review information
- √ housekeeping

Records must be kept for five years. The last two years of records must be kept on site.

What reports must be submitted?

The ATCM (Section 93102.13) requires sources to **submit an annual report to the permitting agency documenting the ongoing compliance status of the equipment**. The report must be submitted on or before February 1 annually and must include information for the preceding calendar year (January 1 through December 31). Other reporting requirements include: performance test documentation (notification and test results), initial compliance status report, reports of breakdowns, and reports associated with the trivalent chromium process.



- ***Have you completed the environmental compliance training course???***

- ***Have you checked with your local air district for specific recordkeeping requirements and forms???***

Need More Information?

Air Resources Board (800) 952-5588

District:

Multi-County Districts

1 - Bay Area (415) 749-5000

2 - Feather River (530) 634-7659

3 - Great Basin (760) 872-8211

4 - Monterey Bay (831) 647-9411

5 - North Coast (707) 443-3093

6 - Northern Sierra (530) 274-9360

7 - South Coast (909) 396-2000

8 - Yolo-Solano (530) 757-3650

9 - San Joaquin Valley (559) 230-6000

County Districts

Amador (209) 257-0112
Antelope Valley (661) 723-8070
Butte (530) 891-2882
Calaveras (209) 754-6504
Colusa (530) 458-0590
El Dorado (530) 621-6662
Glenn (530) 934-6500
Imperial (760) 482-4606
Kern (661) 862-8642
Lake (707) 263-7000
Lassen (530) 251-8110
Mariposa (209) 966-2220
Mendocino (707) 463-4354
Modoc (530) 233-6419
Mojave Desert (760) 245-1661
No. Sonoma (707) 433-5911
Placer (530) 745-2330
Sacramento Metro (916) 874-4800
San Diego (858) 586-2702
San Luis Obispo (805) 781-5912
Santa Barbara (805) 961-8853
Shasta (530) 225-5674
Siskiyou (530) 841-4029
Tehama (530) 527-3717
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